Craig Richmond Tewell

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Lawrence Berkeley National Laboratory
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Berkeley, CA 94720

Education

Doctor of Philosophy, Chemistry, University of California at Berkeley, GPA 3.88, expected 2002

Bachelor of Science, Chemical Engineering, North Carolina State University, Summa Cum Laude, 1995

Bachelor of Science, Chemistry, North Carolina State University, Summa Cum Laude, 1994

Work Experience

Department of Chemistry, University of California at Berkeley, Berkeley, CA

Research Assistant for Professor Gabor Somorjai, August 1995-March 1997; July 1999-present

A reactor system is being developed to be capable of determining the apparent catalytic reaction rate expression while simultaneously measuring the UV-Raman vibrational spectrum. Three low pressure model reactors have been constructed: a spinning disc reactor, a fixed bed reactor, and a fluidized bed reactor. The flow system has been configured for automated GC sampling of both the feed and product streams. The reactor and flow system is being used to study the preparation of Ziegler-Natta polymerization catalysts and hydrocarbon hydrogenation, dehydrogenation, and isomerization reactions over alumina supported platinum catalysts.

Exxon Research & Engineering Company, Process Engineering Department, Florham Park, NJ

Engineer, Lubes and Specialties Section, March 1997-May 1998
Engineer, Hydroprocessing Section, May 1998-February 1999
Project Engineer, Hydroprocessing Section, February 1999-July 1999

Responsible for developing process models from pilot plant data for use in creating design basis specifications for lubes hydroconversion and hydrocracking investment projects. Co-authored three design basis specifications for both lubes and fuels hydroprocessing projects. Prepared licensing proposals for proprietary *SCANFINING* hydrodesulfurization technology. Evaluated third party competitive technology. Developed many economic scoping studies for lubes hydroconversion / hydrocracking, fuels hydroprocessing, fuels octane, and gas-to-liquid hydrocarbon technologies. Served as Process Engineering leader for the development and implementation of Hydrotreating Toolkit, an end user computer application that assesses the performance of hydrotreating reactors by making real-time queries of refinery process databases. Adapted fuels hydroprocessing Excel spreadsheet tools to access Exxon's proprietary thermodynamics package. Created work process for the Process Engineering Department to track compliance with internal engineering consulting regulations.

Rhône-Poulenc, St. Fons, France

Chemical Engineering Intern, May-August 1993
- Determined source of sodium hydroxide contamination in pipestill process streams.

Burroughs-Wellcome, Research Triangle Park, NC

Co-op Laboratory Intern, August 1992-January 1993; January-May 1992
- Investigated structural dependence of pharmacological properties for a certain class of organic molecules.

Teaching Experience

Department of Chemistry, University of California, Berkeley, CA

Graduate Student Instructor

- Organic Chemistry, August-December 1995
- Analytical Chemistry, August-December 1996
- Organic Chemistry, August-December 1999

Department of Chemical Engineering, North Carolina State University, Raleigh, NC

Teaching Assistant

- Chemical Process Systems, January-May 1995

Laboratory Techniques

- Normal Raman spectroscopy
- X-ray and Auger photoelectron spectroscopies
- Temperature programmed desorption
- Gas chromatography
- Ultra high vacuum systems

Language Skills

- Proficiency in French language skills (lu, écrit, et parlé)

Computer Skills

Chemical Process Simulation: experience with older versions of PRO/II and ASPEN products
Programming Languages: FORTRAN and Visual Basic for Applications
Data Acquisition: LabVIEW
Data Analysis: Excel, Sigma Plot, and Origin
Word Processing: Microsoft Word and Power Point

University Honors, Awards, and Activities

1990	Civitan Young Scholar Award
1993	Sigma Xi Undergraduate Award Winner for Analytical Chemistry Research Project
	Henry and Virginia T. Smith Chemical Engineering Scholarship
	Merck Index Award In Chemistry
	Elected to Phi Lambda Upsilon, National Chemical Honor Society
1993-94	Vice-president of Tau Beta Pi, The National Engineering Honor Society
1994-95	President of Tau Beta Pi, The National Engineering Honor Society
	Russ O'Dell Hoechst-Celanese Scholarship for Outstanding Senior in Chemical Engineering

Publications, Posters, and Presentations

1. Ager, J. W., Tewell, C. R., Malizia, F., and Somorjai, G.A., "In-situ Ultraviolet Raman Spectroscopy of Advanced Catalysts," National Laboratory Catalysis Conference, Argonne National Laboratory, October 12-13, 2000.

2. Kim, S. H., Tewell, C. R., and Somorjai, G.A., "Surface Characterization of the $TiCl_x/MgCl_2$ Model Ziegler-Natta Polymerization Catalysts: Adsorption Site Studies Using Mesitylene Thermal Desorption ", in press, *Langmuir*, 2000.

3. Tewell, C. R., Malizia, Federica, Ager, J. W., and Somorjai, G. A., *"In-situ* Monitoring of Heterogeneous Catalytic Reactions Using UV-Raman Spectroscopy: Bridging the Pressure Gap," American Chemical Society Conference, San Diego, CA, April 1-5, 2001.